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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,464	06/06/2007	Hanns-Ingo Maack	DE030425US1	6947
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EXAMINER				
BITAR, NANCY				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/596,464

Applicant(s)

MAACK, HANNS-INGO

Examiner

NANCY BITAR

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2009.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,7-9 and 11 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-5,7-9 and 11 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 29 December 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/S508)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/01/2009 has been entered.

1. Claims 1-5 and 7-9 are currently amended. Claim 11 has been added. Claim 6 and 10 are cancelled.
2. Claims 1-5, 7-9 and 11 are pending.
3. Applicants arguments filed 6/9/2009 have been fully considered but are moot in view of the new ground(s) of rejection necessitated by the amendments. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Yanagita et al (US 2004/0151358)

Examiner Notes

4. Examiner cites particular columns and line numbers in the references as applied to the claims below for the convenience of the applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested that,

in preparing responses, the applicant fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-5,7-9 and 11 rejected under 35 U.S.C. 103(a) as being unpatentable over Rogers et al (US 6,091,841) in view of Yanagita et al (US 2004/0151358)

As to claims 1 and 2, Rogers et al teaches an image processing device for creating a display image from an X-ray image in which at least a marker image ((label, figure 3 and column 14, lines 31-59) and a body part image are displayed (FIGS. 2 and 3, a digital mammogram image 190 is first cropped to segment an analysis region 296 from the image and produce a binary mask 298 corresponding to breast tissue in the analysis region. Preferably, the cropping is performed automatically, although it could be cropped manually, column 4, lines 62-67; claim 1), wherein part-images which show the marker image and body part image are determined in the X-ray image and the part-images are arranged in the display image in a spatially separate manner, wherein the size of the display image is such that the part of the display image that is

free of the part-images is smaller than the corresponding part of the X-ray image (claims 12-14; column 5, lines 20-49). Note that one can arrange the part-images in a “spatially separate manner” by constituting just one of several straightforward possibilities from which one skilled person would select, in order to reduce the size of the displayed image. Moreover, Rogers teaches the potential micro calcifications are thresholded, clusters are detected, features are computed for the detected clusters, and the clusters are classified as either suspicious or not suspicious by means of a neural network. Thresholding is preferably by sloping local thresholding, but may also be performed by global and dual-local thresholding. The locations in the original digital mammogram of the suspicious detected clustered micro calcifications are indicated. Parameters for use in the detection and thresholding portions of the system are computer-optimized by means of a genetic algorithm. Moreover Roger clearly explains cropping means for cropping the digital mammogram image to the largest rectangle that just encloses the digital mammogram pixels corresponding to the dilated mask and segmenting an area of a digital mammogram image corresponding to breast tissue from the remainder of the image by using an image enhancement means for enhancing the digital representation to produce an enhanced image in which the contrast of the area of the mammogram image corresponding to breast tissue is increased; and a thresholding means for thresholding the enhanced image to produce a binary image comprising a seed pixel; and a region growing means for region growing the seed pixel in the binary image to produce a mask and a cropping means for cropping the digital representation to the size of the largest object in the mask (column 4, lines 62-column 5, lines 49). While Rogers meets a number of the limitations of the claimed invention, as pointed

out more fully above, Rogers fails to specifically teach the part images being a marker image and a body part image.

Specifically, Yanagita et al. teaches the display formatting section 17 comprises an image size adjusting section 17a, an image synthesizing section 17b and a subject area recognizing section 17c. The image size adjusting section 17a adjusts the size of an image so that the image size of a sub image is smaller than that of a main image. In the size-adjustment, it is preferable to adjust the size of the sub image into a size so as to arrange the sub image on the outside of the subject area recognized by the subject area recognizing section 17c (paragraph [00253]) . Moreover, Yanagita teaches in FIG. 20 shows an example of an output image 495 output by the image processing device 4. As shown in FIG. 20, in the output image 495, an image 495a of MLO-R and an image 495b of MLO-L are outputted in two-side output as main images. In the image 495a of MLO-R, a reduced abnormality displayed image 495c of MLO-R is displayed as a sub image with scale calibration and a reduction ratio added. The reduced abnormality displayed image 495c indicates that no detected abnormal shadow candidate exists. Moreover, in the indicating "NORMAL" are added, is displayed as a sub image (see figure 1 and paragraph [0350-0352]. it would have been obvious to one of ordinary skill in the art to use the display formatting section of Yanagita in Rogers et al in order to enable the doctor to refer to and to use diagnosis aid information easily and rapidly in an inexpensive system without changing conventional operation flow in a hospital, and improving diagnosis performance and working efficiency of the doctor, by automatically outputting a hardcopy of a medical image in a display format suitable for diagnosis. Therefore, the claimed invention would have been obvious to one of ordinary skill in the art at the time of the invention by applicant.

As to claim 3, Rogers et al teaches the X-ray device of claim 2, wherein in each case the same surface area of the X-ray image detector is exposed to X-ray radiation as the X-ray images are being created (normalizing the brightness values of the pixels in said digital mammogram image to produce a normalized image, claim 6-8; see also Yanagita paragraph [0264-0267])).

As to claim 4, Rogers et al teaches an image processing device of claim 1, wherein the part-images are spaced a minimum distance apart in the display image (Range of points in cluster calculated as maximum interpoint distance minus the minimum interpoint distance, column 11, lines 30-62)

As to claim 5, Rogers et al teaches the image processing device as claimed in claim 1, wherein the X-ray images are mammography X-ray images (a digital mammogram image, 190, figure 2 and 3).

As to claim 7, Rogers et al teaches a method of creating a display image from an X-ray image, comprising the following steps: a) determining part-images, in the X-ray image of each of a marker and a body part (digital mammogram image 190 is first cropped to segment an analysis region 296 from the image and produce a binary mask 298 corresponding to breast tissue in the analysis region, column 4, lines 62-column 5, line 8, b) arranging the part-images in the display image in a spatially separate manner (figure 13, c) dimensioning the size of the display image such that the part of the display image that is free of the part-images is smaller than the corresponding part of the X-ray image (cropping means for cropping said digital representation to the size of the largest object in said mask; claims 12-14; column 7, lines 8-26; see also figures 5 and 6 and 10 of Yanagita et al.).

As to claim 8, Rogers et al teaches the method of claim 7, comprising the further step: d) filling the part of the display image that is free of the part-images with image information from the part of the X-ray image that is free of the part-images (claim 8, hole closing means for closing holes in the region grown mask to produce a closed mask, column 7, lines 27-64).

As to claim 9, Rogers et al teaches the image processing device of claim 1, wherein in order to determine the part-images use is made of a segmenting method in which the image values of the part of the X-ray image that is free of the part-images are determined and a coherent image area which contains mainly pixels with these image values is determined in the X-ray image (column 5, lines 20-49; note that sub sampling every eight pixel in both horizontal and vertical directions reduces the amount of data) .

The limitation of claim 11 has been addressed above.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NANCY BITAR whose telephone number is (571)270-1041. The examiner can normally be reached on Mon-Fri (7:30a.m. to 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikram Bali can be reached on 571-272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nancy Bitar/

Examiner, Art Unit 2624

/VIKKRAM BALI/

Supervisory Patent Examiner, Art Unit 2624